basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P1

NOVEMBER 2025

MARKS: 150

TIME: 3 hours

This question paper consists of 18 pages.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections.

   SECTION A
   QUESTION 1: CLIMATE AND WEATHER (60)
   QUESTION 2: GEOMORPHOLOGY (60)

   SECTION B
   QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES (30)

2. Answer ALL THREE questions.
3. ALL diagrams are included in the question paper.
4. Leave a line between the subsections of questions answered.
5. Start EACH question at the top of a NEW page.
6. Number the answers correctly according to the numbering system used in this question paper.
7. Do NOT write in the margins of the ANSWER BOOK.
8. Draw fully labelled diagrams when instructed to do so.
9. Answer in FULL SENTENCES, except when you have to state, name, identify or list.
10. Units of measurement MUST be indicated in your final answer, e.g. 1020 hPa, 14 °C and 45 m.
11. You may use a non-programmable calculator.
12. You may use a magnifying glass.
13. Write neatly and legibly.

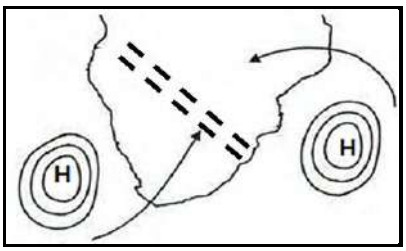
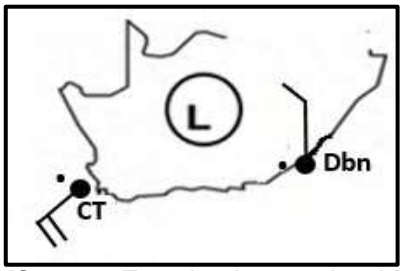
SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1 : 50 000 topographical map 3318DD STELLENBOSCH and a 1 : 10 000 orthophoto map 3318 DD 18 STELLENBOSCH are provided.
15. The area demarcated in RED/BLACK on the topographical map represents the area covered by the orthophoto map.
16. Show ALL calculations. Marks will be allocated for steps in calculations.
17. You must hand in the topographical and orthophoto map to the invigilator at the end of this examination session.

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

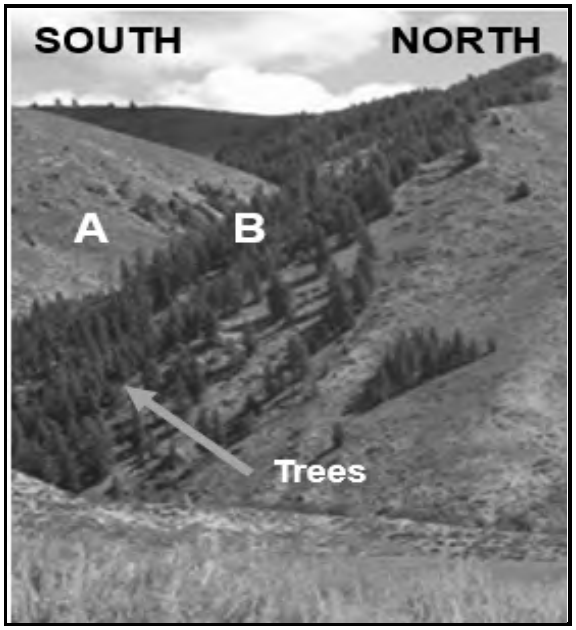
1.1 The questions are based on synoptic weather map interpretation. Complete the statements in COLUMN A with the options in COLUMN B. Write only **Y** or **Z** next to the question numbers (1.1.1 to 1.1.8) in the ANSWER BOOK, e.g. 1.1.9 Y.

	COLUMN A		COLUMN B
1.1.1	The name of the air pressure cell that dominates the interior of South Africa in winter	**Y** **Z**	heat low Kalahari high
1.1.2	Air movement associated with high-pressure cells	**Y** **Z**	convergence divergence
1.1.3	The general direction of movement of a coastal low-pressure system is …	**Y** **Z**	easterly westerly
1.1.4	The … is known as a blocking high when it is in the path of the mid-latitude cyclone.	**Y** **Z**	South Indian high Kalahari high
1.1.5	The elongation of isobars extending outwards from a high-pressure cell is referred to as …	**Y** **Z**	diverging ridging
1.1.6	A … is found between two air masses of different moisture contents.	**Y** **Z**	moisture front inter-tropical convergence zone
1.1.7	The conditions represented in the sketch below will lead to …  [Source: Examiner's own sketch]	**Y** **Z**	line thunderstorms berg winds
1.1.8	Rainfall with 20 knots of wind is likely at …  [Source: Examiner's own sketch]	**Y** **Z**	Durban (Dbn) Cape Town (CT)

(8 x 1) (8)

1.2 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (1.2.1 to 1.2.7) in the ANSWER BOOK, e.g. 1.2.8 D.

Refer to the photograph on slope aspect below to answer QUESTIONS 1.2.1 to 1.2.3.



[Source: https://upload.wikimedia.org/wikipedia/commons/d/d8/Effects_of_aspect.JPG]

1.2.1 Slope aspect refers to …

A upslope movement of air in a valley.
B climate on a smaller scale.
C a zone of warmer air in the valley.
D slope direction in relation to the sun.

1.2.2 The photograph represents a valley in the … Hemisphere.

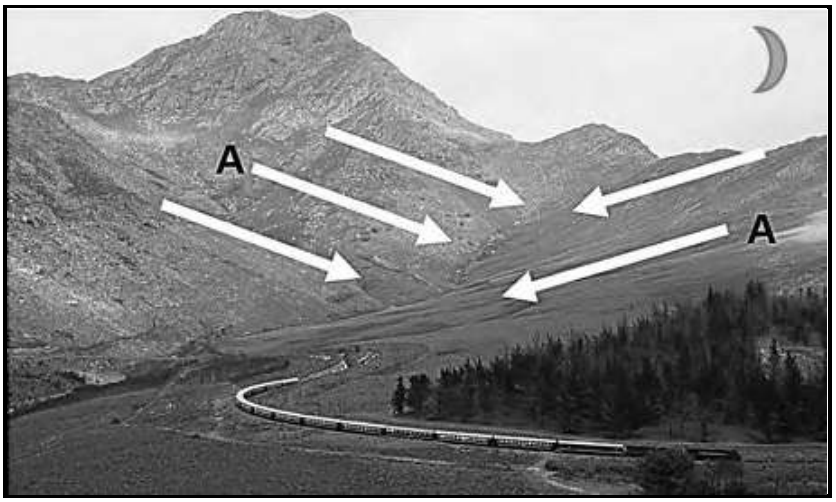
A Northern
B Eastern
C Southern
D Western

1.2.3 Slope **B** represents a … and … slope.

(i) cooler
(ii) warmer
(iii) moist
(iv) drier

A (i) and (ii)
B (ii) and (iii)
C (i) and (iii)
D (ii) and (iv)

Refer to the photograph on valley winds below to answer QUESTIONS 1.2.4 to 1.2.7.



[Source: https://d19lgisewk9l6l.cloudfront.net/assetbank/Oudtshoorn_.jpg]

1.2.4 The arrows at **A** indicate a/an … wind.

A anabatic
B katabatic
C upslope
D onshore

1.2.5 The main conditions for the formation of the wind at **A** are … and …

(i) terrestrial radiation
(ii) solar radiation
(iii) low temperatures
(iv) high temperatures

A (i) and (iii)
B (i) and (iv)
C (ii) and (iii)
D (ii) and (iv)

1.2.6 … forms when the dew point temperature of air is below freezing point on the valley floor.

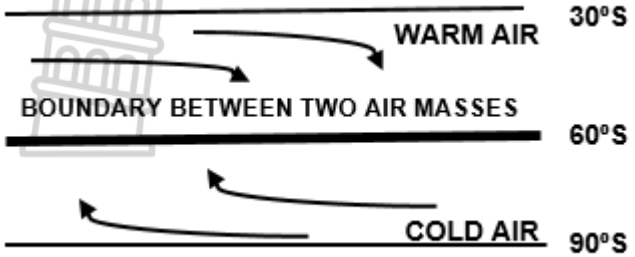
A Mist
B Fog
C Frost
D Smog

1.2.7 The negative physical (natural) impact of the answer to QUESTION 1.2.6 is that it …

A reduces visibility.
B increases pollution.
C increases rainfall.
D destroys vegetation. (7 x 1) (7)

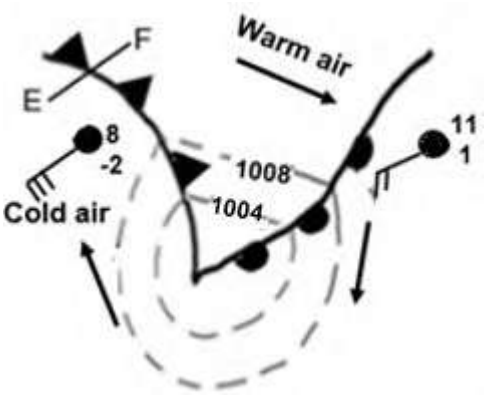
1.3 Refer to the sketches below on the mid-latitude cyclone.

A



[Source: Examiner's own sketch]

B



[Source: Examiner's own sketch]

C

D

[Source: https://www.google.com/search?+impact of mid-latitude cyclones]

1.3.1 What is the name of the boundary between two air masses, as shown in sketch **A**? (1 x 1) (1)

1.3.2 Give ONE reason why the boundary between the two air masses in sketch **A** would form a wave. (1 x 1) (1)

1.3.3 Name the stage of development of the mid-latitude cyclone associated with weather conditions in photographs **C** and **D**. (1 x 1) (1)

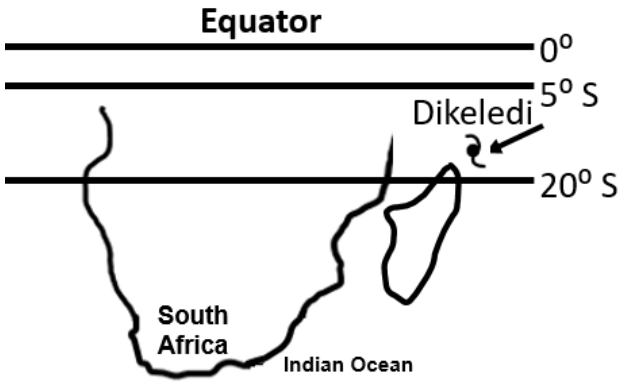
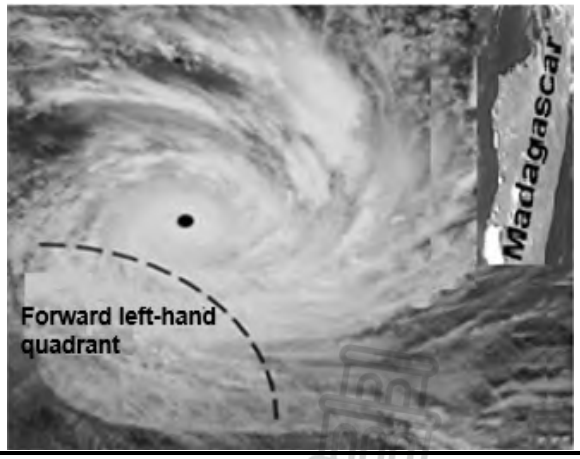
1.3.4 Explain how the weather conditions illustrated in photographs **C** and **D** developed during the stage named in QUESTION 1.3.3. (2 x 2) (4)

1.3.5 In the ANSWER BOOK, draw a fully labelled cross-section of a cold front (**E**–**F**) in sketch **B**. Clearly indicate the following:

(a) Correct cross-section
(b) General direction of movement of the mid-latitude cyclone
(c) Cloud type
(d) Sector (4 x 1) (4)

1.3.6 Refer to sketch **B**. Explain how the difference in temperature of the air masses behind the cold front and ahead of the warm front will result in the formation of a cold front occlusion. (2 x 2) (4)

1.4 Refer to the infographic below on Tropical Cyclone Dikeledi.

A: FACT FILE	B: LOCATION MAP
Tropical Cyclone Dikeledi was first observed off the north-east coast of Madagascar. **Conditions recorded on 8 January 2025:** Pressure in the centre: 996 hPa Maximum wind speed: 75 km/h **Conditions recorded on 13 January 2025:** Pressure in the centre: 976 hPa Maximum wind speed: 150 km/h	 [Source: Examiner's own sketch]
C: SATELLITE IMAGE	**D: SATELLITE IMAGE**
Time span: 2025/01/08 03:30 to 2025/01/08 14:00 UTC	Time span: 2025/01/13 14:00 to 2025/01/13 15:30 UTC 

[Adapted from https://afriwx.co.za/synoptic-charts/]

1.4.1 According to the fact file, in which stage of development was Tropical Cyclone Dikeledi on 8 January 2025? (1 x 1) (1)

1.4.2 Give TWO reasons in the fact file to support your answer to QUESTION 1.4.1. (2 x 1) (2)

Refer to location map **B**.

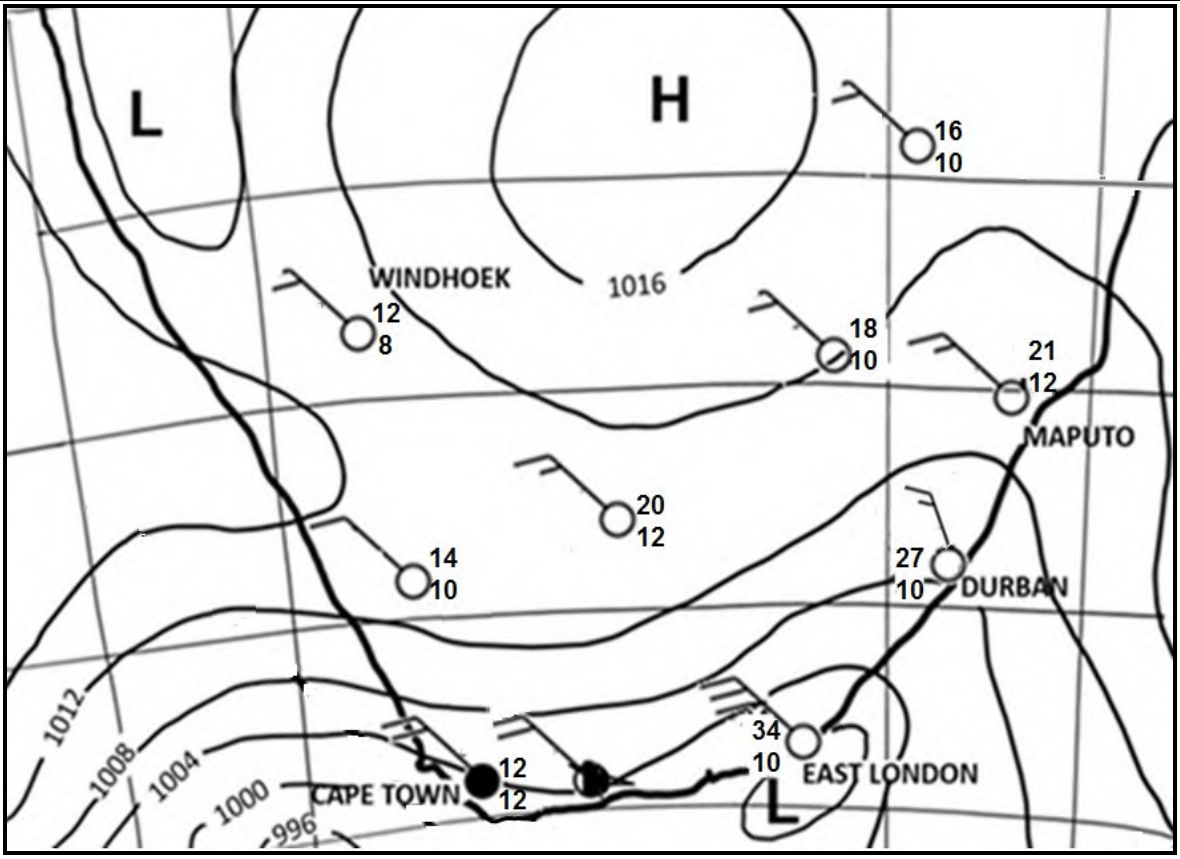
1.4.3 Explain why Tropical Cyclone Dikeledi developed between 5° and 20° south of the equator. (2 x 2) (4)

Refer to the satellite images **C** and **D**.

1.4.4 Describe the weather conditions associated with the forward left-hand quadrant (dangerous semicircle) in satellite image **D**. (2 x 2) (4)

1.4.5 Explain why Tropical Cyclone Dikeledi intensified from 8 January to 13 January 2025. (2 x 2) (4)

1.5 Refer to the synoptic weather map below showing South African berg winds.



Extremely hot and uncomfortable conditions are expected across the Eastern Cape. Temperatures are expected to rise above 30 °C.

[Adapted from https://SAWS#WatherOutlook#Southafricanweather]

1.5.1 Name ONE South African city indicated on the synoptic weather map that is experiencing berg wind conditions. (1 x 1) (1)

1.5.2 Give evidence from the synoptic weather map to support your answer to QUESTION 1.5.1. (1 x 2) (2)

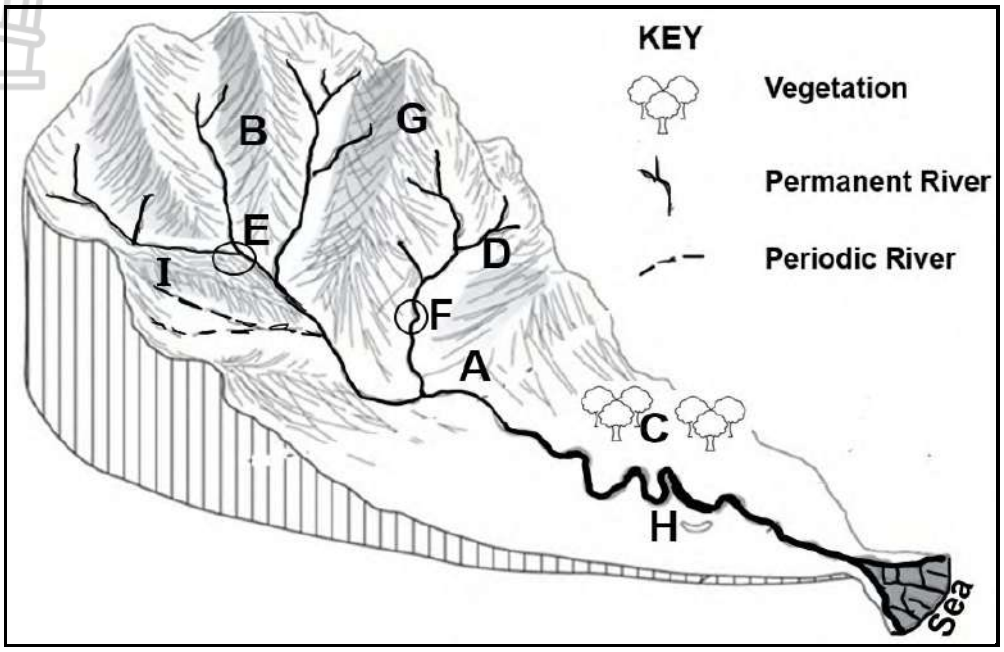
1.5.3 Explain the processes that lead to berg winds being warm and dry. (2 x 2) (4)

1.5.4 The warm and dry conditions can influence veld fires. In a paragraph of approximately EIGHT lines, suggest sustainable strategies that can be put in place to reduce the negative impact of veld fires. (4 x 2) (8)

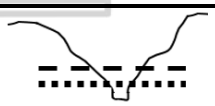
[60]

QUESTION 2: GEOMORPHOLOGY

2.1 Refer to the sketch below based on drainage basins. Complete the statements in COLUMN A with the options in COLUMN B. Write only **Y** or **Z** next to the question numbers (2.1.1 to 2.1.8) in the ANSWER BOOK, e.g. 2.1.9 Y.

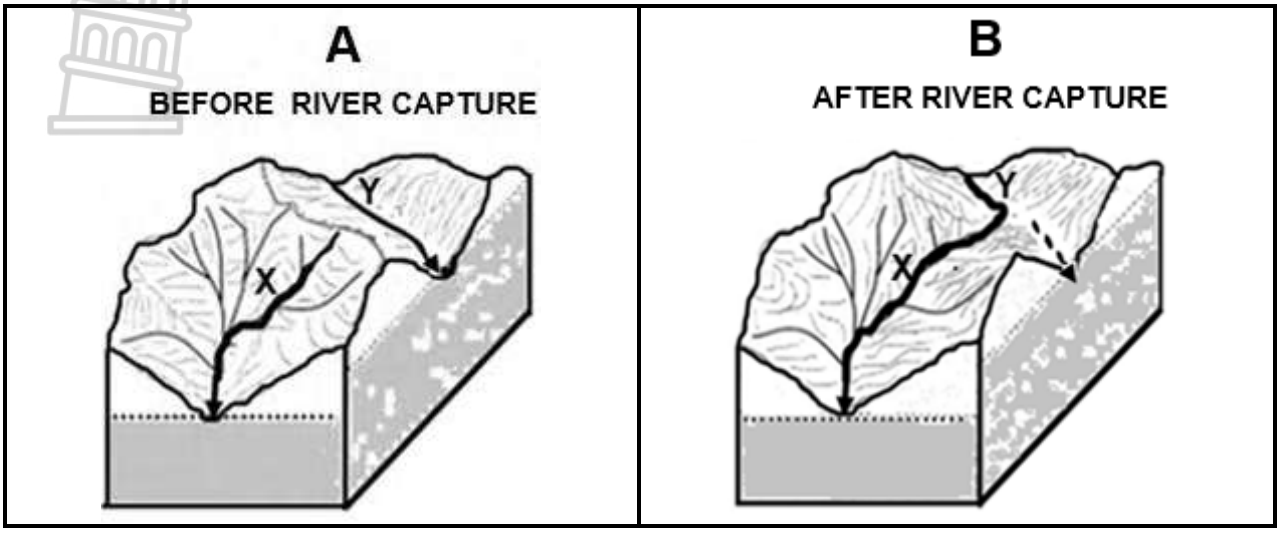


[Source: Examiner's own sketch]

	COLUMN A	COLUMN B
2.1.1	The main river **A** and its tributaries are referred to as a …	**Y** catchment area **Z** river system
2.1.2	The ... in area **B** separates one stream from another.	**Y** watershed **Z** interfluve
2.1.3	The area at **C** will have a ... infiltration rate.	**Y** low **Z** high
2.1.4	The river at **D** is a ... river.	**Y** permanant **Z** periodic
2.1.5	The confluence on the sketch is located at …	**Y** E **Z** F
2.1.6	... will increase in area **G** due to the steep slope.	**Y** Infiltration **Z** Run-off
2.1.7	The stage of the river at **H** is the … course.	**Y** lower **Z** middle
2.1.8	The water table at **I** will resemble … KEY — — — — Rainy Season Water Table ▪▪▪▪▪▪▪ Dry Season Water Table	**Y**  **Z** 

(8 x 1) (8)

2.2 Refer to the sketches below on river capture. Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (2.2.1 to 2.2.7) in the ANSWER BOOK, e.g. 2.2.8 D.



[Adapted from https://www.google.com/url?sa=expeditieaarde.blogspot.com%river capture-]

2.2.1 A river that has its water diverted into another river is referred to as a …

A captured stream.
B stream piracy.
C captor stream.
D headward stream.

2.2.2 Rivers flowing over areas with a … are more likely to be the captor stream.

A gentle gradient and soft rock
B steep gradient and low rainfall
C steep gradient and soft rock
D heavy rainfall and resistant rock

2.2.3 Evidence that river capture has taken place in sketch **B**:

A River **Y** has more water flowing in it.
B River **Y** has captured the headwaters of river **X**.
C River **X** has captured the headwaters of river **Y**.
D River **X** has a smaller drainage basin.

2.2.4 The cause of river capture, as shown in sketch **B**, is …

A headward erosion by river **Y**.
B lateral erosion by river **X**.
C headward erosion by river **X**.
D vertical erosion by river **Y**.

2.2.5 The part of the river that has less water after river capture is known as the … stream.

A captor
B non-perennial
C perennial
D misfit

2.2.6 River **X** has more erosive power after river capture because of …

A a greater volume of water and turbulent stream flow.
B a greater volume of water and laminar flow.
C headward erosion and turbulent stream flow.
D rejuvenation and laminar flow.

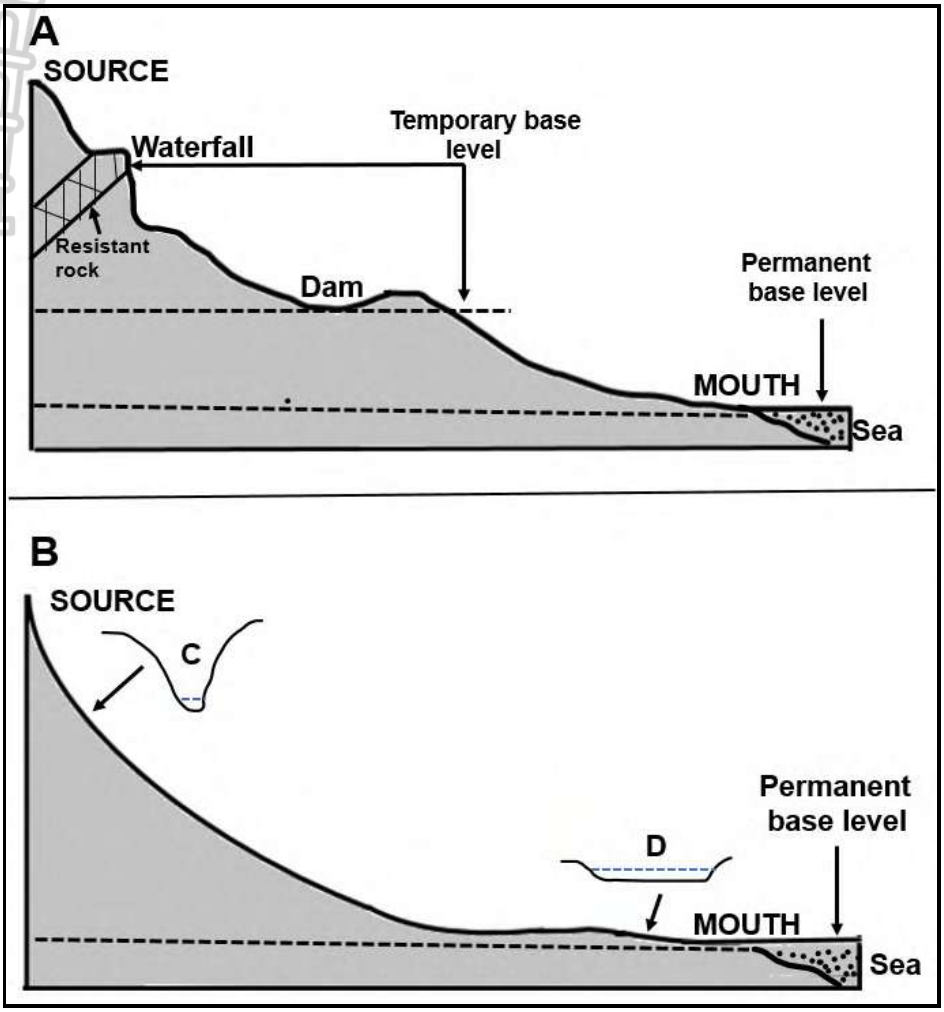
2.2.7 The physical (natural) impact of river capture on the captor stream is that the … and …

(i) drainage basin decreases
(ii) river rejuvenation takes place
(iii) deposition increases
(iv) water flows faster

A (i) and (iv)
B (i) and (iii)
C (ii) and (iv)
D (ii) and (iii)

(7 x 1) (7)

2.3 Refer to the sketches below showing two longitudinal river profiles.



[Source: Examiner's own sketch]

2.3.1 What is a *longitudinal profile*? (1 x 2) (2)

2.3.2 Which ONE of the sketches above shows a graded longitudinal profile? (1 x 1) (1)

2.3.3 Give evidence in the sketch to support your answer to QUESTION 2.3.2. (2 x 1) (2)

2.3.4 Classify EACH of the temporary base levels in sketch **A** as either natural or human-made. (2 x 1) (2)

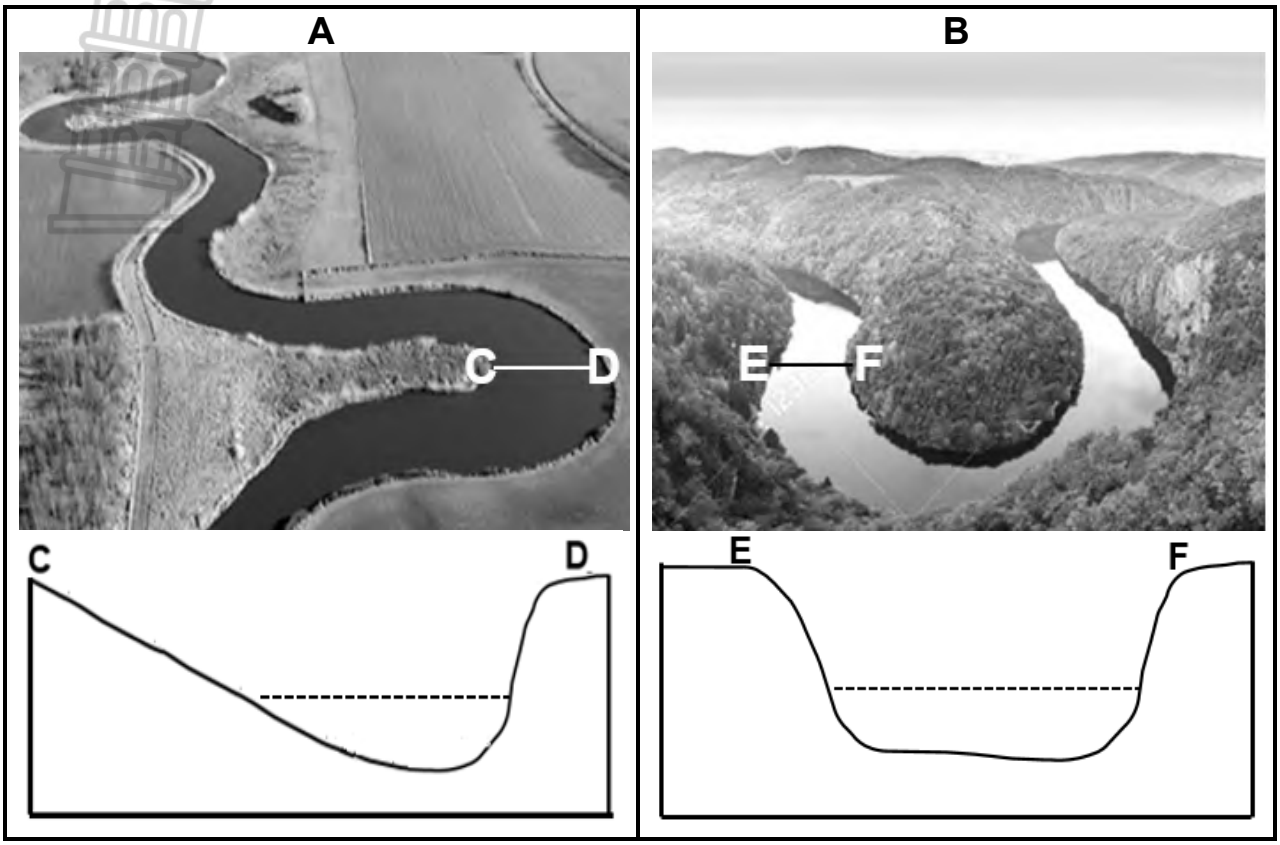
2.3.5 Why is the sea indicated as the permanent base level? (1 x 2) (2)

Refer to cross-profiles **C** and **D**.

2.3.6 Differentiate between the shapes of the cross-profiles at **C** and **D**. (1 x 2) (2)

2.3.7 Explain the main processes that give rise to the difference in the shape of cross-profiles **C** and **D**. (2 x 2) (4)

2.4 Refer to photographs **A** and **B** below showing meanders.



[Source: https://www.google.com/search?+meanders&tbm]

2.4.1 Meanders are more likely to form in the (upper/lower) stage/course of a river. (1 x 1) (1)

2.4.2 Account for the gentle gradient of the inner bank at **C** in photograph **A**. (1 x 2) (2)

Refer to photograph **B** and cross-section **E–F**.

2.4.3 How does the process of river rejuvenation lead to the formation of incised meanders? (2 x 2) (4)

2.4.4 Refer to photograph **A**. In a paragraph of approximately EIGHT lines, explain how an oxbow lake is formed. (4 x 2) (8)

2.5 Refer to the extract and photograph below on catchment and river management.

IMPACT OF SETTLEMENTS ON RIVER MANAGEMENT

Dense settlements that locate along rivers have a negative impact on rivers. The main reason is that these settlements generally receive poor service provision. These poor communities also do not have the means to pay for the provision of services, such as waste removal.

When large amounts of waste pile up in the settlement, the community is more likely to dispose of the waste in the river. This leads to further pollution, eventually leading to serious health risks for the community.

[Adapted from https://witsvuvuzela.com/2022/11/28/-residents-live-on-the-edge-of-a-health-hazard/]

2.5.1 According to the extract, why are dense settlements along rivers associated with pollution? (1 x 1) (1)

2.5.2 Give TWO reasons from the photograph to support your answer to QUESTION 2.5.1. (2 x 1) (2)

2.5.3 Explain how the rise in the water level of the river will negatively affect the houses (in the photograph) due to their location. (1 x 2) (2)

2.5.4 Explain the negative impact of poor river management on the health of rivers. (2 x 2) (4)

2.5.5 Suggest strategies that the municipality can put in place to ensure the sustainability of the river in the photograph. (3 x 2) (6)

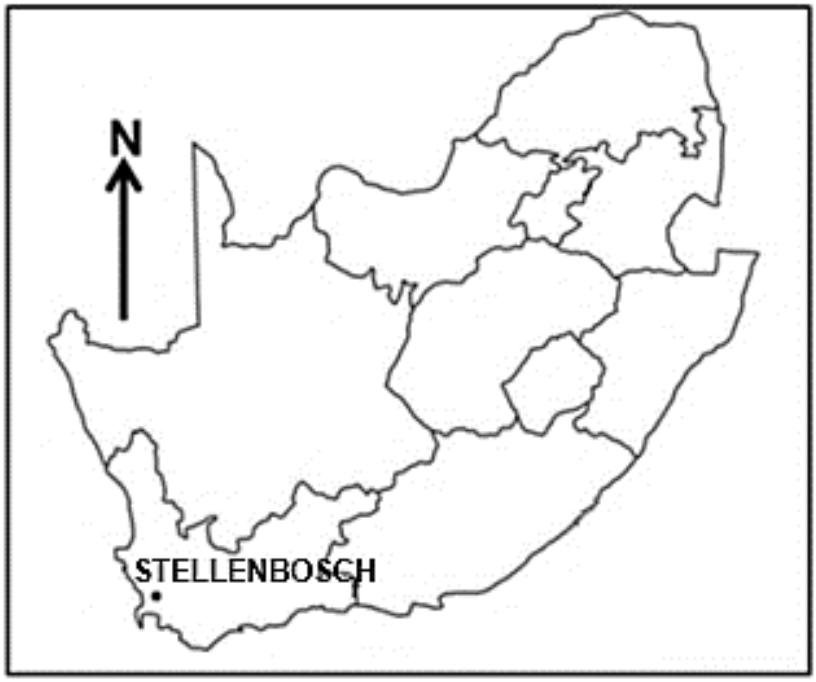
[60]

TOTAL SECTION A: 120

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

GENERAL INFORMATION ON STELLENBOSCH



Coordinates: 33°45'S; 18°45'E

Stellenbosch is located in a hilly, sheltered valley within the Cape Winelands, with an average elevation of 136 metres above sea level, surrounded by hills and mountains, like Papegaaiberg, Stellenboschberg, and the Jonkershoek, Drakenstein and Simonsberg mountain ranges. It is situated approximately 50 kilometres east of Cape Town.

Stellenbosch has a Mediterranean climate with warm, dry summers and cool, rainy winters.

The Eerste River originates in the Jonkershoek Mountains, 60 kilometres east of Cape Town, and flows through the Jonkershoek Valley before reaching Stellenbosch.

[Adapted from https://en.wikipedia.org/wiki/Stellenbosch]

The following English terms and their Afrikaans translations are shown on the topographical map:

ENGLISH	**AFRIKAANS**
River	Rivier
Nature reserve	Natuurreservaart
Mountain	Berg

3.1 MAP SKILLS AND CALCULATIONS

3.1.1 Calculate the difference in height between trigonometrical station **F** in block **C3** and trigonometrical station **G** in block **D3**. (2 x 1) (2)

3.1.2 The natural feature found at 33°58'29"S; 18°54'15"E is a …

A trigonometrical station.
B perennial river.
C saddle.
D spot height. (1 x 1) (1)

3.1.3 Calculate the average gradient from **6** in block **E5** to **7** in block **D5** on the orthophoto map.

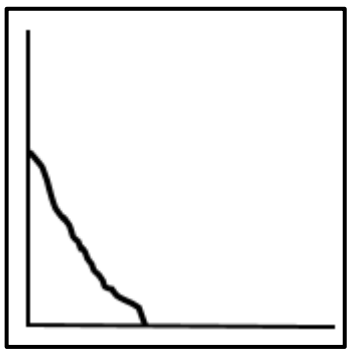
Use the following information:

Vertical interval (VI) = 60 m

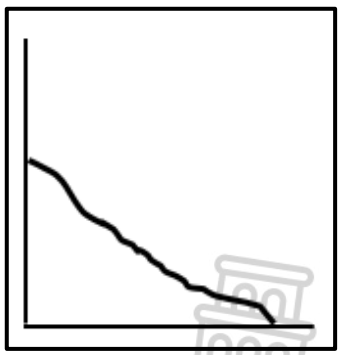
Formula: $\frac{\text{Vertical Interval (VI)}}{\text{Horizontal Equivalent (HE)}}$ (4 x 1) (4)

3.1.4 Match the average gradient (answer to QUESTION 3.1.3) with sketch **A** or **B** below.

A



B



(1 x 1) (1)

3.1.5 Is **L** in block **C2** visible from **H** in block **C4** on the topographical map? (1 x 1) (1)

3.1.6 Give a reason for your answer to QUESTION 3.1.5. (1 x 1) (1)

3.2 MAP INTERPRETATION

3.2.1 Stellenbosch has a … climate.

A tropical
B arid
C Mediterranean
D subtropical (1 x 1) (1)

3.2.2 Stellenbosch experiences seasonal rainfall. Give evidence from block **A5** on the topographical map to support this statement. (1 x 1) (1)

Refer to area **8** on the orthophoto map.

3.2.3 Explain why area **8** will experience lower temperatures than the surrounding built-up area. (1 x 2) (2)

Refer to the row of trees labelled **J** in block **E3** on the topographical map.

3.2.4 State the general wind direction experienced in the area around **J** during the night. (1 x 1) (1)

3.2.5 Give evidence from the map to support your answer to QUESTION 3.2.4. (1 x 2) (2)

Refer to the topographical map.

3.2.6 Stellenboschberg is a watershed. Give evidence from the map to support this statement. (1 x 2) (2)

Refer to the photograph of a river located in Stellenbosch.

[Source: shutterstock.com]

3.2.7 Will the river depicted on the photograph be located at **K** in block **D1** or **L** in block **C2**? (1 x 1) (1)

3.2.8 Give a reason for your answer to QUESTION 3.2.7. (1 x 2) (2)

3.3 GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

3.3.1 The number 310, labelled **M** on the main road in block **A3** on the topographical map, is referred to as … data.

A spatial
B vector
C attribute
D numerical (1 x 1) (1)

3.3.2 Identify a natural line feature in block **A4** on the topographical map. (1 x 1) (1)

Refer to area **9** in block **A3** on the orthophoto map.

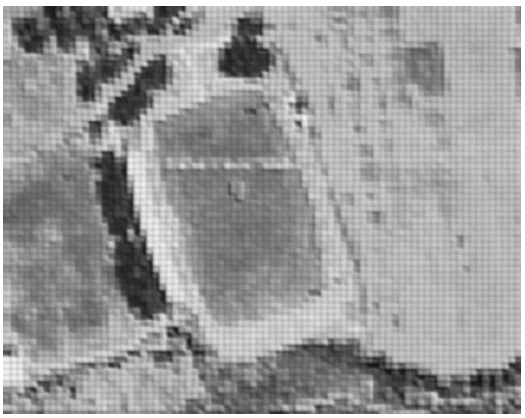
3.3.3 Using data manipulation, explain how you would manipulate the scale at area **9** to make the image clearer. (1 x 2) (2)

3.3.4 … refers to the clarity of an image.

A Data integration
B Buffering
C Data sharing
D Resolution (1 x 1) (1)

Refer to the images of the Danie Craven Stadium below, extracted from block **D1/D2** on the orthophoto map.

A



B

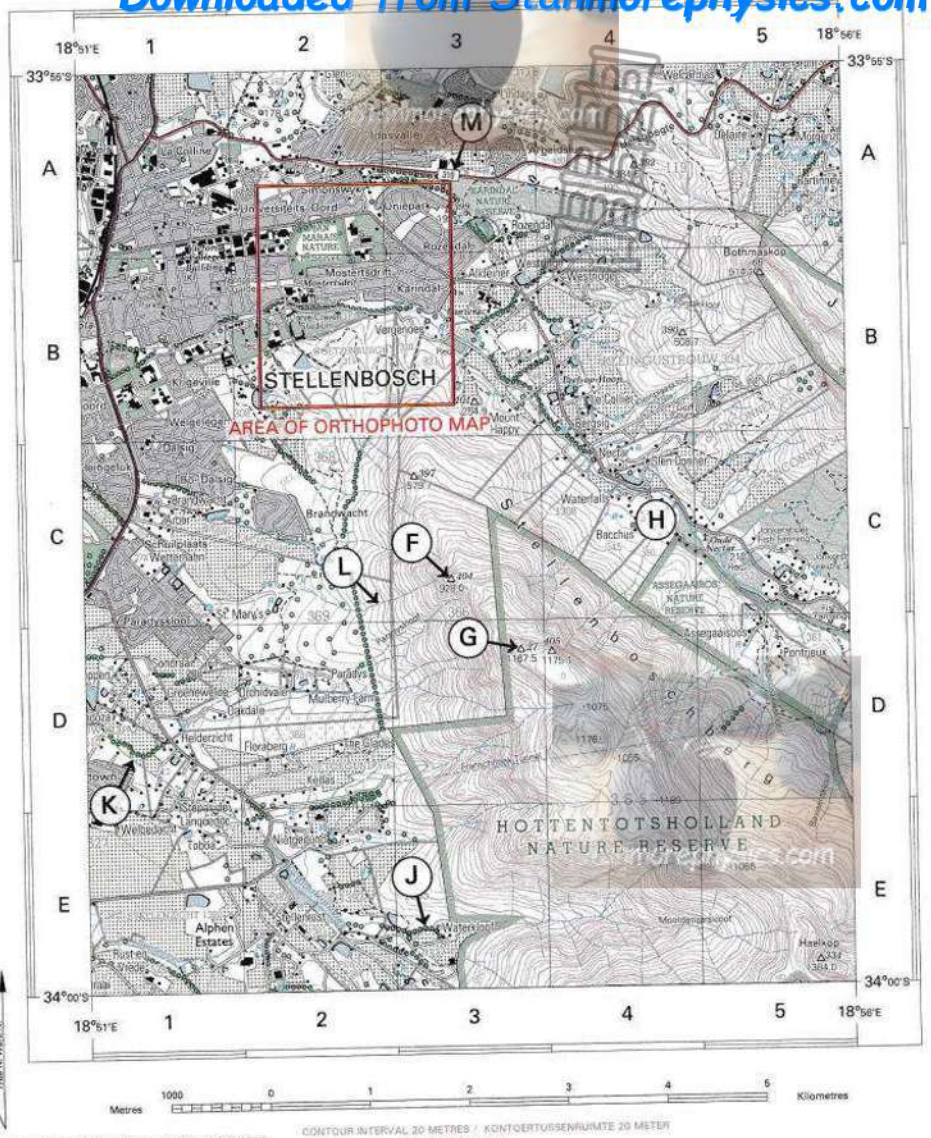
[Source: https://earth.google.com/web/search/Danie+Craven+Stadium,+Coetzenburg+Street/@-A]

3.3.5 Which photograph, **A** or **B,** has fewer pixels? (1 x 1) (1)

3.3.6 Give a reason for your answer to QUESTION 3.3.5. (1 x 2) (2)

TOTAL SECTION B: 30
GRAND TOTAL: 150

EXTRACT FROM 3318DD STELLENBOSCH 1:50 000



Metres 1000 0 1 2 3 4 5 Kilometres

Mean magnetic declination 25°03' West of True North (March 2015).
Mean annual change 7' Westwards (March 2015 - Feb. 2016).

CONTOUR INTERVAL 20 METRES / KONTOERTUSSENRUIMTE 20 METER

REFERENCE

National Freeway; National Route	International Boundary and Beacon	Fence; Wall
Arterial Route	Provincial Boundary	Windpump; Monument
Main Road	Protected Area	Communication Towers
Secondary Road; Bench Mark	Perennial River	Mine Dump; Excavation
Other Road; Bridge	Perennial Water	Trigonometrical Station; Marine Beacon
Track and Hiking Trail	Non-perennial River	Lighthouse and Marine Light
Railway; Station or Siding	Non-Perennial Water	Cemetery; Grave
Other Railway; Tunnel	Dry Water Course	Erosion; Sand
Embankment; Cutting	Dry Pan	Woodland
Power Line	Marsh and Vlei	Cultivated Land
Built-up Area (High, Low Density)	Pipeline (above ground)	Orchard or Vineyard
Buildings; Ruin	Water Tower; Reservoir; Water Point	Recreation Ground
Post Office; Police Station; Store	Coastal Rocks	Row of Trees
Place of Worship; School; Hotel	Prominent Rock Outcrop	Original Farms

EXTRACT FROM 3318 DD 18 STELLENBOSCH ortho - rectified image 1:10 000

0 km 200m 400m 600m 800m 1 km

CONTOUR INTERVAL 5 METRES - KONTOERTUSSENRUIMTE 5 METER

VERKLARING

Nasionale Deurpad; Nasionale Roete	Internasionale Grens en Baken	Draadheining; Muur
Hoofverkeersroete	Provinsiale Grens	Windpomp; Monument
Hoofpad	Bewarings Gebied	Kommunikasietoring
Sekondêre Pad; Hoogterkerk	Standhoudende Rivier	Mynhoop; Uitgrawing
Ander Pad; Brug	Standhoudende Water	Peilbaken; Seevaartbaken
Dowwe Pad en Voetslaanpad	Nie-standhoudende Rivier	Vuurtoring en Seevaartlig
Spoorweg; Stasie of Sylyn	Nie-standhoudende Water	Begraafplaas; Graf
Ander Spoorweg; Tonnel	Droë Loop	Erosie; Sand
Opvulling; Deurgrawing	Droë Pan	Beboste Gebied
Kraglyn	Moeras en Vlei	Bewerkte Land
Beboude Gebied (Hoë, Lae Digtheid)	Pyplyn (bo die grond)	Boord of Wingerd
Geboue; Murasie	Watertoring; Reservoir; Waterpunt	Ontspanningsterrein
Poskantoor; Polisiestasie; Winkel	Kuslynrotse	Rye Bome
Plek van Aanbidding; Skool; Hotel	Prominente Klipbank	Ooreprontklike Plase

basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

GEOGRAPHY P1

NOVEMBER 2025

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 12 pages.

PRINCIPLES FOR MARKING GEOGRAPHY- NSC NOVEMBER 2025 AND SC/NSC JUNE 2026

The following marking principles have been developed to standardise marking in all provinces.

MARKING

- ALL questions MUST be marked, irrespective of whether it is correct or incorrect
- Where the maximum marks have been allocated for a particular question, place an M over the remainder of the text to indicate the maximum marks have been achieved.
- Where a correct fact has been mentioned more than once in a specific response R
- A clear, neat tick must be used: ✓
  - If ONE mark is allocated, ONE tick must be used: ✓
  - If TWO marks are allocated, TWO ticks must be used: ✓✓
  - The tick must be placed at the FACT that a mark is being allocated for
  - Ticks must be kept SMALL, as various layers of moderation may take place
- Incorrect answers must be marked with a clear, neat cross: ✗
  - Use MORE than one cross across a paragraph/discussion style questions to indicate that all facts have been considered
  - Do NOT draw a line through an incorrect answer
  - Do NOT underline the incorrect facts

For the following action words, ONE-word answers are acceptable: **list**, **name**, **state**, **identify**
For the following action words, a FULL sentence must be written: **describe**, **explain**, **evaluate**, **analyse**, **suggest**, **differentiate**, **distinguish**, **define**, **discuss**, **why**, **how**
The following action words need to be read within its context to determine whether a ONE-word answer or FULL sentence is required: **provide**, **what**, **tabulate** and **give**

NOTE THE FOLLOWING

- If the numbering is incorrect or left out, as long as the sequence of answers to questions is followed candidates can be credited
- Spelling errors if recognisable, award the marks provided the meaning is correct.
- Be sensitive to the sense of an answer, which may be stated in a different way
- In questions where a letter is the accepted response, but the learner writes the actual answer- award marks.
- There will be additional guidelines for the marking of certain questions.

TOTALLING AND TRANSFERRING OF MARKS

- Each sub-question must be totalled
  - Questions in Section A have five sub-sections, therefore five sub-totals per question required. Section B has three sub-sections and three sub-totals.
  - Sub-section totals to be written in the right-hand margin at the end of the sub-section and underlined
  - Sub-totals must be written legibly
  - Leave room to write in moderated marks on different levels
- Total sub-totals and transfer total to top left-hand margin next to question number
- Transfer total to cover of answer book

30

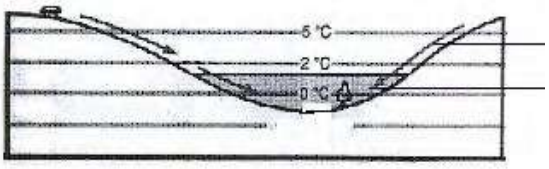
QUESTION 1

1.1.1 A (South Atlantic High) (1) ✓
1.1.2 B (Kalahari High) (1) ✓
1.1.3 B (South Indian) (1) ✗ **2**

1.2.1 Melting snow ✓
1.2.2 Mouth ✗
1.2.3 Third order ✓ **2**

1.3.1 Katabatic ✗
1.3.2 **1** occurs during the day while **2** occurs at night ✓✓

1.3.3 Cold air rolls down ✓ into the valley ✓ and forms an inversion



Air flows downslope ✓✓ **6**

1.4.1 Shape of front concave ✗
Steep gradient of front ✓

1.4.2 Warm air undercuts the cold air ✗

1.4.3 Air behind the cold front is colder ✓✓ than the air in front. Cold air moves faster than ✓✓ warm air ahead of it. Cold front catches up with the warm ✓✓ front. **7**

1.5.1 (a) A river that only flows all year round ✗

(b) The river channel is wide ✗

(c) Regularity ✓✓ of rainfall and the soil type ✓✓ over which the streams flow. Rainfall occurs regularly **R** ✓ ✗

1.5.2 Gauteng and the Eastern Cape

1.5.3 The cost of food production will increase at it is costly to buy purified water. Farmers will have to buy more chemicals ✓✓ to purify water. Chemicals cost a lot and this ✓✓ will increase production costs. It will be costly to purify water ✓✓ for use in electricity generation. These costs will be included in electricity prices. Costs will increase the price of electricity during production. There will be less clean water to generate hydro-electricity. M **13**

SECTION A: CLIMATE AND WEATHER AND GEOMORPHOLOGY

QUESTION 1: CLIMATE AND WEATHER

1.1	1.1.1	Z (1)		
	1.1.2	Z (1)		
	1.1.3	Y (1)		
	1.1.4	Y (1)		
	1.1.5	Z (1)		
	1.1.6	Y (1)		
	1.1.7	Y (1)		
	1.1.8	Z (1)	(8 x 1)	(8)
1.2	1.2.1	D (1)		
	1.2.2	C (1)		
	1.2.3	C (1)		
	1.2.4	B (1)		
	1.2.5	A (1)		
	1.2.6	C (1)		
	1.2.7	D (1)	(7 x 1)	(7)

1.3 1.3.1 Polar front (1) (1 x 1) (1)

1.3.2 Give ONE reason why the boundary forms a wave

Atmospheric instability (1)
Frictional drag (1)
Jet streams (1)
Orographic features (accept examples) (1)
Temperature differences (1)
Windspeed differences (1)
[ANY ONE] (1 x 1) (1)

1.3.3 Stage

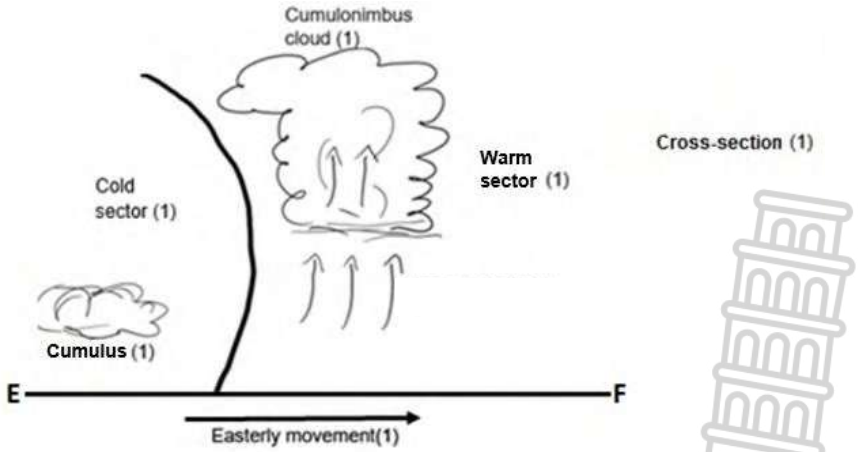
Mature stage (1) (1 x 1) (1)

1.3.4 Explain how the weather conditions developed in C and D F+Q

Steep pressure gradient results in gale force/strong winds (2)
Strong updraughts/rapid upliftment results in (cumulonimbus clouds) heavy rainfall (2)
Air behind the cold front undercuts the warm air ahead of it gives rise to (cumulonimbus clouds) and heavy rainfall (2)
[ANY TWO- MUST MENTION GALE FORCE/STRONG WINDS AND HEAVY RAINFALL] (2 x 2) (4)

INSTRUCTIONS FOR PART MARKING
Steep pressure gradient (1)
Strong updraughts/rapid upliftment (1)
Air behind the cold front undercuts the warm air (1)
[ANY ONE- MAXIMUM ONE MARK]

1.3.5 Cross-section from E-F



Marks will be allocated for:
Correct cross-section drawing (1)
Direction of movement of system (1)
One type of cloud (Cb /Cu) (1)
One sector (1) (4 x 1) (4)

1.3.6 Explain how the difference in temperature of the air masses formed a cold front occlusion Process

The air behind the cold front is colder than the air in front of the warm front (2)
The cold air behind the cold front undercuts the warmer air in front of the warm front (2)
The warmer (less dense air) is uplifted over the colder (denser) air (2) (2 x 2) (4)

INSTRUCTIONS FOR PART MARKING
The air behind the cold front is colder (1)
The cold air behind the cold front undercuts(1)
The warmer (less dense) air is uplifted (1)
[MAXIMUM TWO MARKS]

1.4 1.4.1 Immature stage (1) (1 x 1) (1)

1.4.2 TWO reasons in fact file

The pressure in the centre is 996 hPa (1)
Wind speed is 75 km/h (1)
(Accept: it has been given a name) (1)
[ANY TWO] (2 x 1) (2)

1.4.3 Explain why the TC developed between 5°-20 S° F+Q

Coriolis force is present within these latitudes resulting in deflection (2)
High temperatures/warm oceans promote high evaporation rate (2)
Latent heat released during condensation (2)
High evaporation rate will lead to intense low pressure (2)
[ANY TWO] (2 x 2) (4)

INSTRUCTIONS FOR PART MARKING
Coriolis force is present (1)
High temperatures/warm oceans (1)
Latent heat (1)
High evaporation rate (1)
[MAXIMUM TWO MARKS]

1.4.4 Describe the weather conditions associated with the forward left-hand quadrant

Hurricane force/strength /very strong destructive/ winds (2)
Torrential rainfall/heavy rainfall/thunderstorms (2)
Hailstorms (2)
Lightning (2)
[ANY TWO] (2 x 2) (4)

1.4.5 Explain why the TC intensified from 8-13 Jan F+O

It moved from land/Madagascar to the warmer waters (Mozambique channel) resulting in increased evaporation/latent heat (2)
Less frictional drag over the ocean increases the wind speed (2)
(Central) pressure dropped (996 hPa to-976 hPa) due to warmer ocean (2)
[ANY TWO] (2 x 2) (4)

INSTRUCTIONS FOR PART MARKING
It moved from land/Madagascar to the warmer waters (1)
Less frictional drag over the ocean (1)
(Central) pressure dropped (996 hPa to-976 hPa) (1)
[MAXIMUM TWO MARKS]

1.5 1.5.1

East London (1)
Durban (1)
[ANY ONE] (1 x 1) (1)

1.5.2 Give evidence to support 1.5.1

Large temperature range (2)
High air temperatures/Air temperature of 34 °C/27 °C (2)
Low humidity/dry air/clear sky (2)
(Accept- presence of Kalahari HP and coastal LP) (2)
[ANY ONE] (1 x 2) (2)

1.5.3 Explain the processes that lead to berg winds to be warm and dry

TEMPERATURE
The air descends (from the interior) down the escarpment (2)
The air is heated adiabatically (1 °C/100 m) (2
[ANY ONE]

MOISTURE
Moisture is evaporated as air descends (from the interior to the coast) (2)
[MUST INCLUDE TEMPERATURE AND MOISTURE] (2 x 2) (4)

1.5.4 Paragraph Suggest sustainable strategies to reduce the negative impact of veld fires

Create firebreaks/buffer zone (accept examples) (2)
Build water storage facilities (accept examples) (2)
Educate community about strategies they could implement (accept examples) (2)
Make emergency services accessible (accept examples) (2)
Access to fire-fighting equipment (2)
Implement early warning systems (accept examples) (2)
Create emergency assembly points (accept examples) (2)
Create awareness (accept examples) (2)
Create lookout towers (2)
Install sprinklers (2)
Evacuation routes and plans (accept examples) (2)
Remove alien vegetation/plants (which is flammable) (2)
[ANY FOUR] (4 x 2) (8)

[60]

QUESTION 2: GEOMORPHOLOGY

2.1	2.1.1	Z (1)		
	2.1.2	Z (1)		
	2.1.3	Z (1)		
	2.1.4	Y (1)		
	2.1.5	Y (1)		
	2.1.6	Z (1)		
	2.1.7	Y (1)		
	2.1.8	Z (1)	(8 x 1)	(8)
2.2	2.2.1	A (1)		
	2.2.2	C (1)		
	2.2.3	C (1)		
	2.2.4	C (1)		
	2.2.5	D (1)		
	2.2.6	A (1)		
	2.2.7	C (1)	(7 x 1)	(7)
2.3	2.3.1	A side view of a river from source to mouth (2) **[CONCEPT]** **INSTRUCTIONS FOR PART MARKING** A side view of the river (1)	(1 x 2)	(2)
	2.3.2	B (1)	(1 x 1)	(1)
	2.3.3 Give evidence in the sketch graded profile	No temporary base levels/knickpoints (1) No obstructions (accept examples) (1) Smooth concave shape (1) **[ANY TWO]**	(2 x 1)	(2)

	2.3.4 Classify each base level as natural or human-made	**Natural** Waterfall (1) **Human-made** Dam (1)	(2 x 1)	(2)
	2.3.5 Sea	It is the lowest (ultimate) level to which a river can erode (2) **[CONCEPT]**	(1 x 2)	(2)
	2.3.6 Differentiate between shape	Profile C is a closed V-shaped (narrow, deep and steep sided) whereas profile D is an open U-shaped (very wide and gently sloping) (2) **[MUST MENTION BOTH PROFILES]**	(1 x 2)	(2)
	2.3.7 Explain the main processes that give rise to shape of C and D	**Profile C** Vertical/downward erosion is dominant in the upper course (2) **Profile D** Deposition is dominant in the lower course (2) Lateral erosion occurs (2) **[ANY ONE]** **[MUST REFER TO BOTH PROFILE C AND D]**	(2 x 2)	(4)
2.4	2.4.1	Lower (1)	(1 x 1)	(1)
	2.4.2 Gentle gradient at C	Due to deposition (2) Slow movement/velocity of water (2) **[ANY ONE]**	(1 x 2)	(2)
	2.4.3 Incised meanders	River rejuvenation results in vertical (downward) erosion (2) Results in a deeper stream channel/valley (due to vertical erosion)(2)	(2 x 2)	(4)
	2.4.4 PARAGRAPH Explain how an ox-bow lake forms Process	Continuous (lateral) erosion takes place on the outer bank/under-cut slope (2) Deposition on the inner bank/slip off slope (2) Meander neck narrows (2) River floods and cuts through meander neck (2) Meander loop is separated from the main stream (by deposition resulting in an ox-bow lake) (2) **[ANY FOUR]**	(4 x 2)	(8)
2.5	2.5.1 Why are dense settlements associated with pollution	Poor service provision (1) Do not have means to pay for waste removal services (1) Piled up waste in the settlement is disposed of in the river (1) **[ANY ONE]**	(1 x 1)	(1)

2.5.2 TWO reasons to support answer to 2.5.1

Evidence of solid waste (accept examples) (1)
No infrastructure to remove waste (accept examples) (1).
No evidence of potable water (1) (2 x 1) (2)
[ANY TWO]

2.5.3 Explain how the rise in water level will affect houses due to their location

Houses are close to the river and could easily flood (2)
River banks could collapse destroying houses (accept examples) (2)
[ANY ONE] (1 x 2) (2)

INSTRUCTIONS FOR PART MARKING
Houses are close to the river (1)
River banks could collapse (1)
[MAXIMUM ONE MARK]

2.5.4 Explain the negative impact of poor river management on the health of rivers

Reduced water quality (accept examples) (2)
Damages habitat for aquatic life (2)
Destroys aquatic life (accept examples) (2)
Destroys food chains/food webs (2)
Causes eutrophication (accept examples) (2)
Disrupt ecosystems (2)
Loss of biodiversity (2)
Increased sedimentation (accept examples) (2)
[ANY TWO] (2 x 2) (4)

2.5.5 Suggest strategies that municiplaity can put in place to ensure sustainability of the river

Relocate the people (2)
Create a buffer zone (2)
Create awareness campaigns (accept examples) (2)
Educate people on river management (accept examples) (2)
Encourage people not to build houses on the river bank (2)
Implement legislation (2)
Impose fines (2)
Plant more vegetation (accept examples) (2)
Provide more refuse removal facilities (accept examples) (2)
Continuous monitoring/testing (2)
Encourage community involvement (accept examples) (2)
Provide incentives to people (accept examples) (2)
Encourage the recycling of waste (2)
Build proper sanitation/drainage systems/water treatment plants (2)
Maintain infrastructure (2)
[ANY THREE] (3 x 2) (6)
[60]

TOTAL SECTION A: 120

SECTION B

QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES

3.1 3.1.1 1167,5 m – 928,0 (1) m = 239,5 m (1) (2 x 1) (2)

3.1.2 C (1) (1 x 1) (1)

3.1.3 Formula: **Vertical Interval (VI)**
Horizontal Equivalent (HE)

VI= 60 m
HE= 3,8 (1) cm x 100 = 380 (1) m Range: (3,7 cm – 3,9 cm)
Range: (370 m – 390 m)

$\frac{60}{380}$ (1) (For correct substitution)

1 : 6,33 (1) Range: (1:6,16 – 1:6,50) (4 x 1) (4)

3.1.4 A (1) (1 x 1) (1)

3.1.5 No (1) (1 x 1) (1)

3.1.6 There is an obstruction (accept examples from the topographical map) between L and H (1) (1 x 1) (1)

3.2 3.2.1 C (1) (1 x 1) (1)

3.2.2 Evidence for seasonal rainfall
Perennial water/Dams/ (1)
Reservoirs (1)
Non-perennial rivers (1)
[ANY ONE] (1 x 1) (1)

3.2.3 Explain why area 8 has lower temps than surrounding built-up areas F+Q
Presence of vegetation results in evapotranspiration (2)
Presence of vegetation provides shade (2)
Natural surfaces absorb less heat (2)
Less buildings/built up areas to absorb heat (2)
Fewer human activities that generate heat (2)
Better air movement cools the area (2)
[ANY ONE] (1 x 2) (2)

INSTRUCTIONS FOR PART MARKING
Presence of vegetation (1)
Natural surfaces (1)
Less buildings/built up areas (1)
Fewer human activities (1)
Better air movement (1)
[MAXIMUM ONE MARK]

3.2.4 North/ NW/NNW/North East/ north to south /southwards (1) (1 x 1) (1)

	3.2.5 Wind direction evidence	Row of trees (windbreaks) are on the north/north east of the orchards or vineyards (2) Wind blows down the mountain slopes (katabatic wind) (2) Wind breaks are planted perpendicular to the prevailing wind (2) **[ANY ONE]**	(1 x 2)	(2)
	3.2.6 Evidence from map for watershed	Many river systems flow in a north easterly and south westerly direction (2) Many river systems are flowing (away) in opposite directions from the Stellenboschberg (2) **[ANY ONE]**	(1 x 2)	(2)
	3.2.7	L (1)	(1 x 1)	(1)
	3.2.8	L is found in the upper course (2) Rapids are characteristic of the upper course (2) The flow of water is turbulent (2) The stream flows over steep gradient (2) High velocity (2) Uneven riverbed (2) **[ANY ONE]**	(1 x 2)	(2)
3.3	3.3.1	C (1)	(1 x 1)	(1)
	3.3.2	River (1)	(1 x 1)	(1)
	3.3.3 Explain how to manipulate the scale	Make the scale larger (2)	(1 x 2)	(2)
	3.3.4	D (1)	(1 x 1)	(1)
	3.3.5	A (1)	(1 x 1)	(1)
	3.3.6	The clarity of the photograph is poor (2) There is low resolution (2) It shows less details (2) Image is blurry / unclear / distorted (2) Large pixels (2) **[ANY ONE]**	(1 x 2)	(2)
			TOTAL SECTION B:	**30**
			GRAND TOTAL:	**150**